. . . . . .

p:tac AAATGAGCTG TTGACAATTA ATCATCGGCT CGTATAATGT GTGGAATTGT GAGCGGATAA EcoRI SacI KpnISmaI CAATTTCACA CAGGAAACAG AATTCGAGCT CGGTACCCGG GCTACATGGA GATTAACTCA **RBS** -> α-globin ATCTAGAGGG TATTAATAAT GTATCGCTTA AATAAGGAGG AATAACATAT GGTGCTGTCT CCTGCCGACA AGACCAACGT CAAGGCCGCC TGGGGTAAGG TCGGCGCGCA CGCTGGCGAG TATGGTGCGG AGGCCCTGGA GAGGATGTTC CTGTCCTTCC CCACCACCAA GACCTACTTC CCGCACTTCG ATCTGAGCCA CGGCTCTGCC CAGGTTAAGG GCCACGGCAA GAAGGTGGCC GACGCGCTGA CCAACGCCGT GGCGCACGTG GACGACATGC CCAACGCGCT GTCCGCCCTG AGCGACCTGC ACGCGCACAA GCTTCGGGTG GACCCGGTCA ACTTCAAGCT CCTAAGCCAC TGCCTGCTGG TGACCCTGGC CGCCCACCTC CCCGCCGAGT TCACCCCTGC GGTGCACGCC TCCCTGGACA AGTTCCTGGC TTCTGTGAGC ACCGTGCTGA CCTCCAAATA CCGTTAAACT RBS |-> B-globin AGAGGGTATT AATAATGTAT CGCTTAAATA AGGAGGAATA ACATATGGTG CACCTGACTC CTGAGGAGAA GTCTGCCGTT ACTGCCCTGT GGGGCAAGGT GAACGTGGAT GAAGTTGGTG GTGAGGCCCT GGGCAGGCTG CTGGTGGTCT ACCCTTGGAC CCAGAGGTTC TTTGAGTCCT TTGGGGATCT GTCCACTCCT GATGCTGTTA TGGGCAACCC TAAGGTGAAG GCTCATGGCA AGAAAGTGCT CGGTGCCTTT AGTGATGGCC TGGCTCACCT GGACAACCTC AAGGGCACCT TTGCCACACT GAGTGAGCTG CACTGTGACA AGCTGCACGT GGATCCTGAG AACTTCAGGC β108Asn->Gln TCCTGGGACA AGTACTGGTC TGTGTGCTGG CCCATCACTT TGGCAAAGAA TTCACCCCAC CAGTGCAGGC TGCCTATCAG AAAGTGGTGG CTGGTGTGGC TAATGCCCTG GCCCACAAGT ->|SphI rrB(5S,T1,T2) ATCACTAAGC ATGCATCTGT TTTGGCGGAT GAGAGAAGAT TTTCAGCCTG ATACAGATTA NsiI

## FIG. 1A

. . . . . .

p:tac AAATGAGCTG TTGACAATTA ATCATCGGCT CGTATAATGT GTGGAATTGT GAGCGGATAA EcoRI SacI KpnISmaI CAATTTCACA CAGGAAACAG AATTCGAGCT CGGTACCCGG GCTACATGGA GATTAACTCA RBS -> α-globin ATCTAGAGGG TATTAATAAT GTATCGCTTA AATAAGGAGG AATAACATAT GGTGCTGTCT CCTGCCGACA AGACCAACGT CAAGGCCGCC TGGGGTAAGG TCGGCGCGCA CGCTGGCGAG TATGGTGCGG AGGCCCTGGA GAGGATGTTC CTGTCCTTCC CCACCACCAA GACCTACTTC CCGCACTTCG ATCTGAGCCA CGGCTCTGCC CAGGTTAAGG GCCACGGCAA GAAGGTGGCC GACGCGCTGA CCAACGCCGT GGCGCACGTG GACGACATGC CCAACGCGCT GTCCGCCCTG AGCGACCTGC ACGCGCACAA GCTTCGGGTG GACCCGGTCA ACTTCAAGCT CCTAAGCCAC TGCCTGCTGG TGACCCTGGC CGCCCACCTC CCCGCCGAGT TCACCCCTGC GGTGCACGCC TCCCTGGACA AGTTCCTGGC TTCTGTGAGC ACCGTGCTGA CCTCCAAATA CCGTTAAACT RBS -> β-globin AGAGGGTATT AATAATGTAT CGCTTAAATA AGGAGGAATA ACATATGGTG CACCTGACTC CTGAGGAGAA GTCTGCCGTT ACTGCCCTGT GGGGCAAGGT GAACGTGGAT GAAGTTGGTG GTGAGGCCCT GGGCAGGCTG CTGGTGGTCT ACCCTTGGAC CCAGAGGTTC TTTGAGTCCT TTGGGGATCT GTCCACTCCT GATGCTGTTA TGGGCAACCC TAAGGTGAAG GCTCATGGCA AGAAAGTGCT CGGTGCCTTT AGTGATGGCC TGGCTCACCT GGACAACCTC AAGGGCACCT TTGCCACACT GAGTGAGCTG CACTGTGACA AGCTGCACGT GGATCCTGAG AACTTCAGGT β105Leu->Trp GGCTAGGCAA CGTGCTGGTC TGTGTGCTGG CCCATCACTT TGGCAAAGAA TTCACCCCAC CAGTGCAGGC TGCCTATCAG AAAGTGGTGG CTGGTGTGGC TAATGCCCTG GCCCACAAGT ->|SphI rrB(5S,T1,T2) ATCACTAAGC ATGCATCTGT TTTGGCGGAT GAGAGAAGAT TTTCAGCCTG ATACAGATTA NsiI

. . . . . .

FIG. 1B

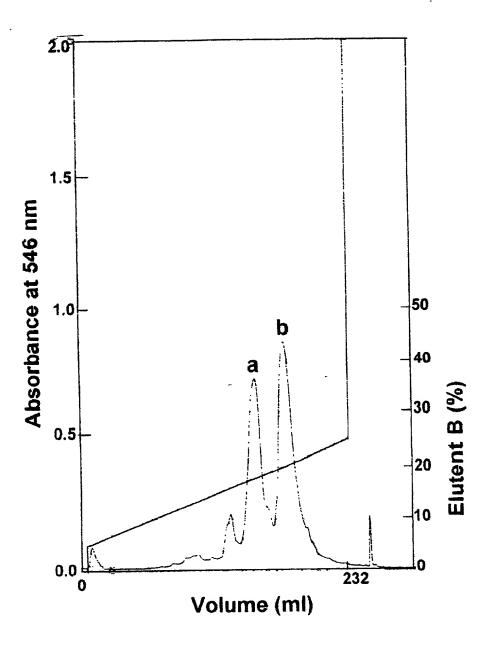


FIG. 2A

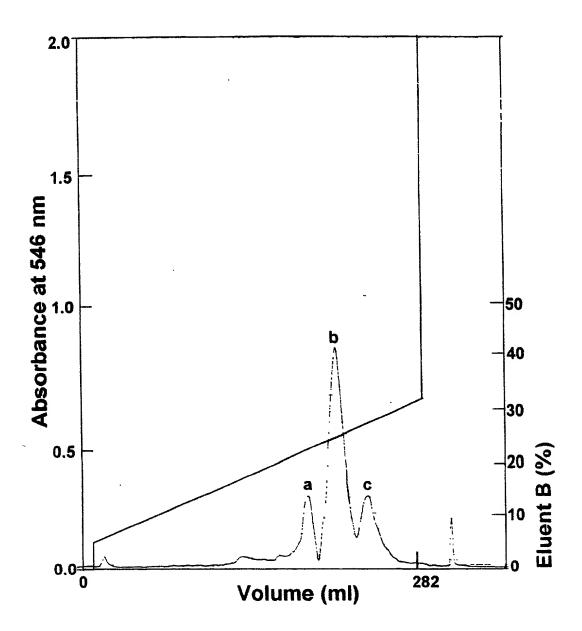
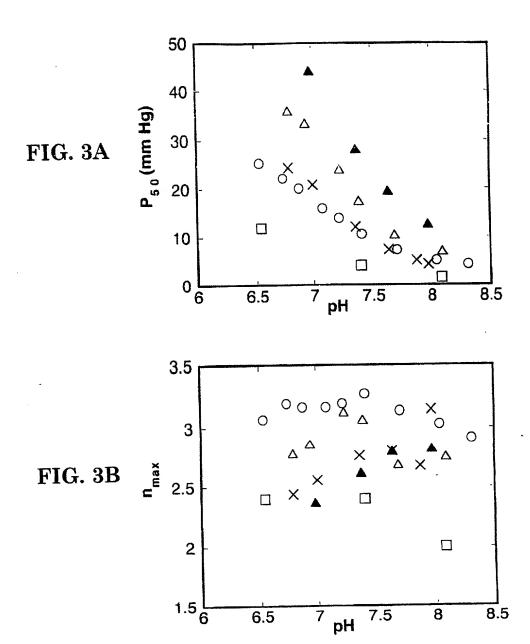


FIG. 2B



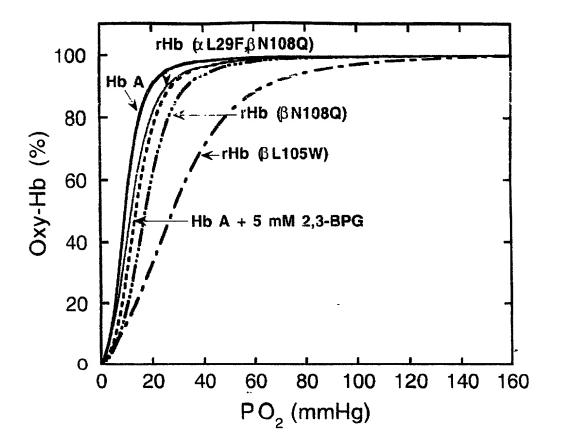


FIG. 4

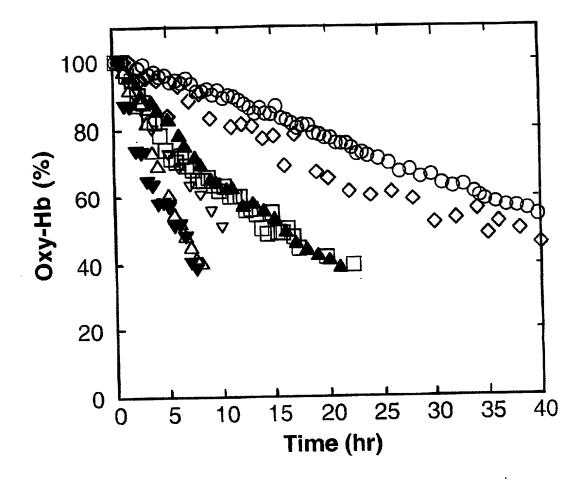


FIG. 5

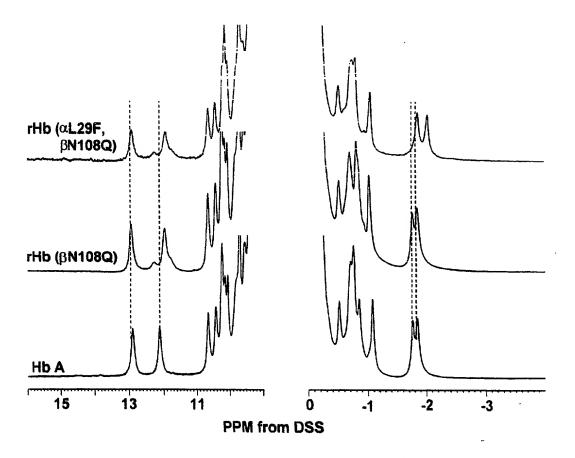


FIG. 6A

FIG. 6B

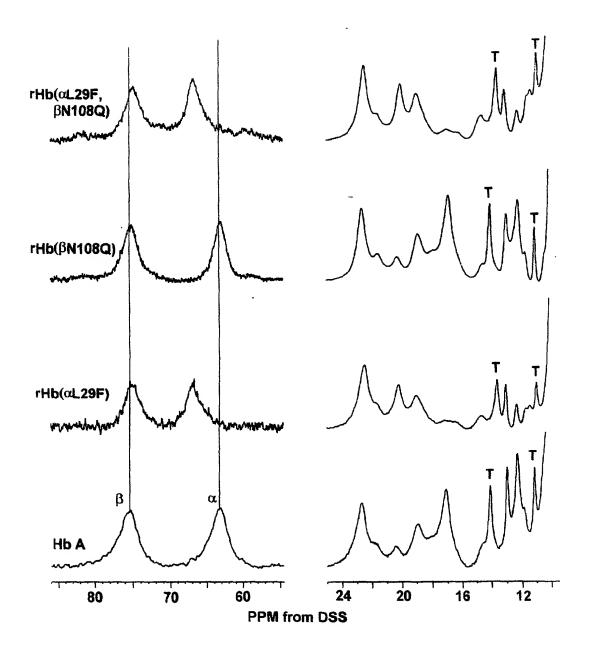


FIG. 7A

FIG. 7B

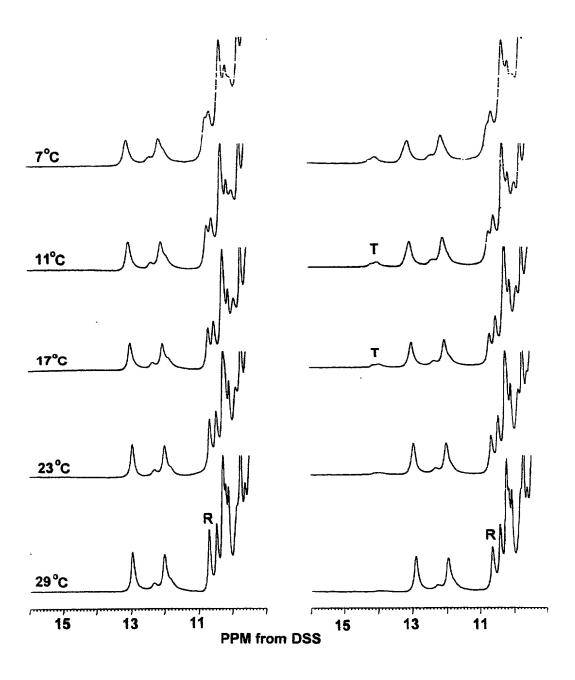


FIG. 8A

FIG. 8B

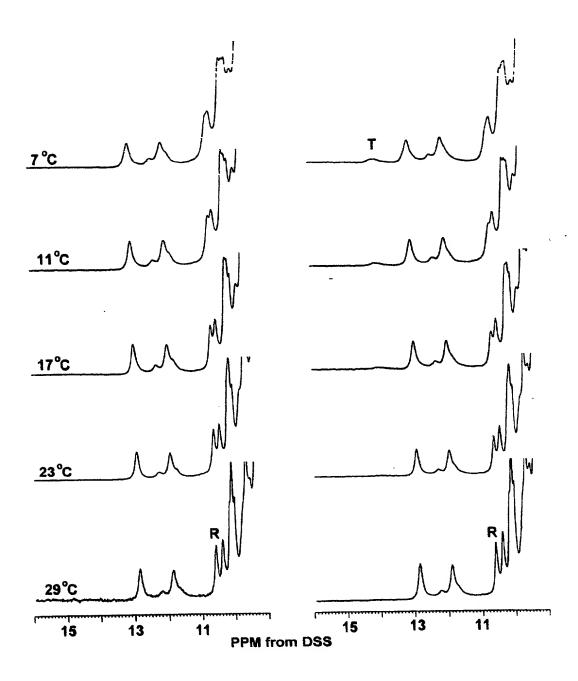
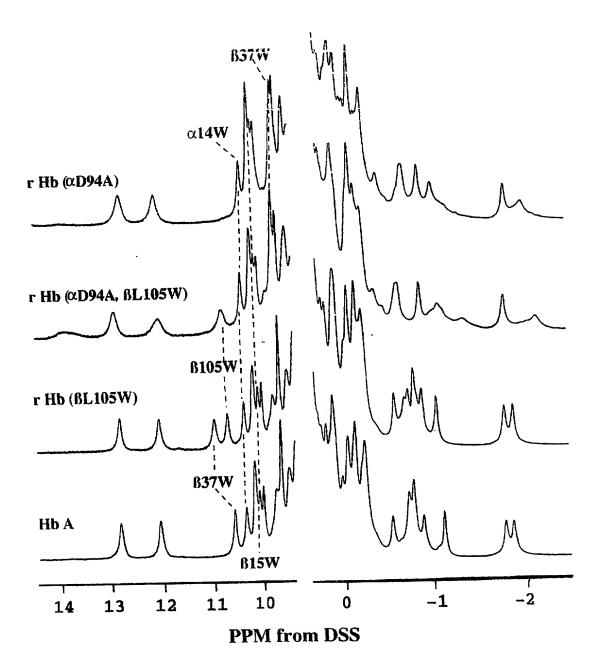


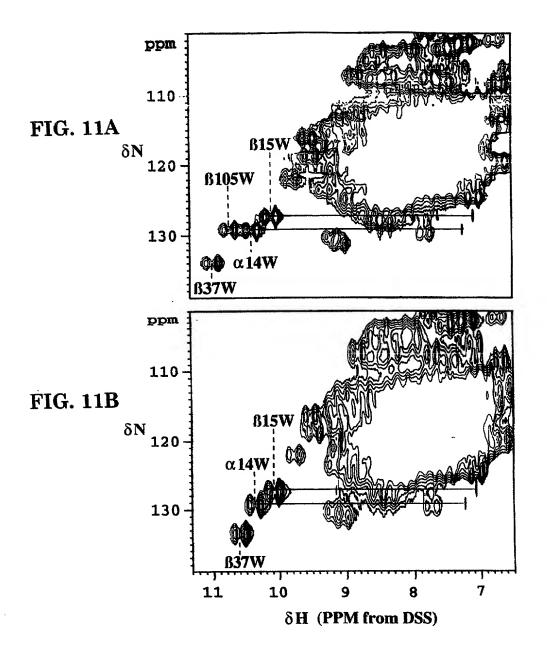
FIG. 9A

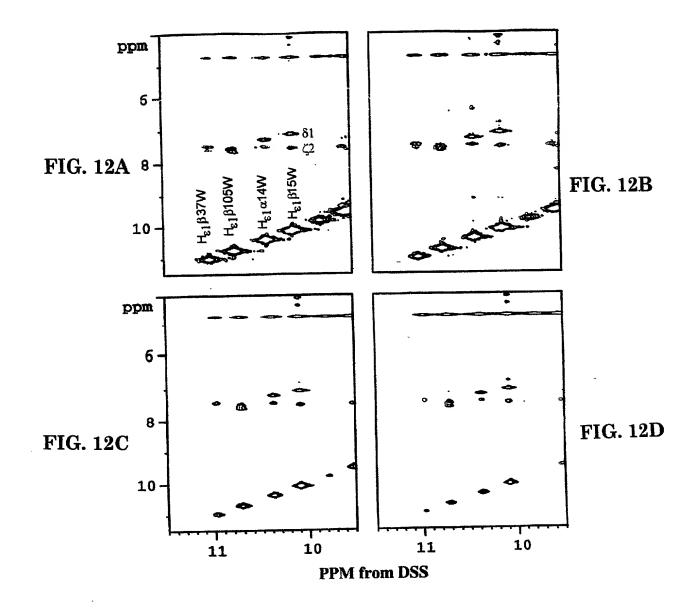
FIG. 9B

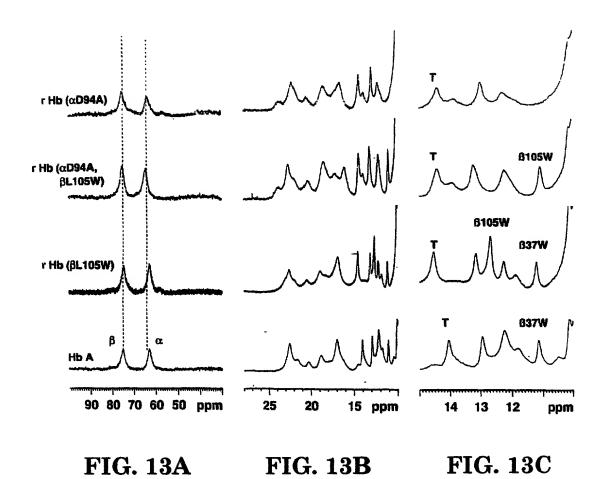


**FIG. 10A** 

**FIG. 10B** 







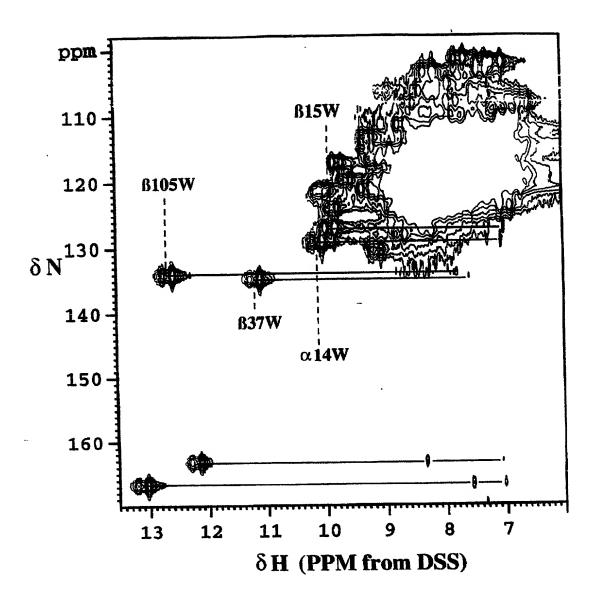


FIG. 14

